

LOWS.

The general direction of the paths has been on a higher parallel of latitude than in the case of the highs. Lows Nos. V, VI, and VII began on the north Pacific Coast; Nos. I and

IV began to the north of Montana; Nos. II, III, and VIII began in the central valleys. All the storms, without exception, disappeared over Newfoundland or in the permanent low area of that region.

CLIMATOLOGY OF THE MONTH.

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GENERAL CHARACTERISTICS.

The month opened with an area of cloud and rain over the lower Mississippi Valley and Gulf States, a region, it will be remembered, in which heavy rains fell during March and April of the current year. Since that time no general storm has originated in or passed over the Gulf States. The rains in the interim have been light and sporadic, and the water in the rivers in many cases has reached as low a point as ever before recorded. At the close of the month there was a notable deficiency of precipitation over all of the country from the Carolinas southward and westward to Oklahoma and Texas. On the other hand, an abundance of rain fell in the Ohio Valley from Cairo to the lower Lake Region; also in New England and generally over the northern Pacific Coast, extending as far eastward as Montana.

Temperature was generally above normal, the only important exception being on the central and north Pacific Coast and over the northern plateau where it was below normal. Killing frost was general throughout Mississippi and Alabama on the 30th, and light to killing frost occurred at many points in Louisiana on the same date. Light frost occurred at New Orleans on the 18th and at Mobile on the 19th.

The first half of the month was an unusually stormy period in the Lake Region, but the number of storms during the last half was not greater than the average for the season.

The most severe storm of the month prevailed on the north Pacific Coast from the morning of the 17th to the morning of the 19th. The anemometer at the Fort Canby station registered 2,380 miles of wind, an average velocity of 63 miles per hour between 11 p. m. of the 16th and 2 p. m. of the 18th, thirty-eight consecutive hours. The wind blew with the greatest velocity (over 70 miles per hour) during the last six hours of the storm's duration.

Some damage was done by the wind at inland points, but the greatest destruction was occasioned by floods in small streams and rivers. Railroad travel was greatly interrupted by landslides, washouts, and destruction of bridges. Fortunately a fall in temperature on the 20th checked what might otherwise have been a very destructive flood throughout Washington and Oregon.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

Pressure was below normal over practically the whole Plateau Region and the north Pacific Coast, the greatest deficit being at Walla Walla, Wash. Elsewhere it was above normal, especially in Assiniboia and Manitoba.

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The numerical values of Table I should be consulted for additional details.

TEMPERATURE OF THE AIR.

[In degrees Fahrenheit.]

Except in the upper half of California, the northern portion of Oregon, thence northward to the boundary line and eastward to Lake Superior, November was warmer than usual. The departures from the normal were not great in any district save over north-central Montana where the average daily deficit was about 10°. There were no very severe cold waves, and the month as a whole presented no striking features as regards temperature.

The mean temperatures and the departures from the normal, as determined from records of the maximum and minimum thermometers, are given in Table I for the regular stations of the Weather Bureau, which also gives the height of the thermometers above the ground at each station. The mean temperature is given for each station in Table II, for voluntary observers.

The *monthly mean temperatures* published in Table I, for the regular stations of the Weather Bureau, are the simple means of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II. The mean temperatures given in Table III for Canadian stations are the simple means of 8 a. m. and 8 p. m. simultaneous observations.

The *regular diurnal period* in temperature is shown by the hourly means given in Table V for 29 stations selected out of 82 that maintain continuous thermograph records.

The *distribution of the observed monthly mean temperature* of the air over the United States and Canada is shown by the dotted isotherms on Chart IV; the lines are drawn over the Rocky Mountain Plateau region, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The *years of highest and lowest mean temperatures* for November are shown in Table I of the Review for November, 1894. The mean temperature for the current month was neither the highest nor the lowest on record at any regular station of the Weather Bureau.

The *maximum and minimum temperatures* of the current month are given in Table I. The highest maxima were: 92, Los Angeles (18th); 88, Yuma (2d), Phoenix (19th); 86, Corpus Christi (8th), San Antonio (11th); 85, Jupiter (1st); 84, Abilene (3d), Palestine (15th), Dodge City (20th). The lowest maxima were: 49, Marquette (3d); 54, Sault Ste. Marie (3d), Fort Canby (18th); 55, Eastport (6th); 56, Duluth (2d); 57, Portland, Me., (4th); 59, Detroit (frequently). The highest minima were: 67, Key West (4th); 58, Jupiter (3d); 50, Tampa (13th); 49, Port Eads (2d). The lowest minima were: -26, Miles City (28th); -21, Havre (28th); -19, Williston and Huron (29th).

The *years of highest maximum and lowest minimum temperatures* for November are given in the last four columns of Table I of the Review for November, 1896. During the current month the maximum temperatures were equal to or above